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Center for Advanced Infrastructure & Transportation
Rutgers, The State University of New Jersey

NJDOT Bureau of Research
QUARTERLY PROGRESS REPORT

Project Title:	Use of Windows-based PDAs for Paperless Operation of Emergency Management Team		
RFP NUMBER:	NJDOT RESEARCH PROJECT MANAGER: Stan Worosz		
TASK ORDER NUMBER/Study Number: Task Order No. 138/4-29091	PRINCIPAL INVESTIGATOR: Dr. Trefor Williams/Dr. Izzat Bakhadyrov/Joe Orth		
Project Starting Date: 12/15/2003 Original Project Ending Date: 12/15/2004 (pending correction) Modified Completion Date:	Period Covered: 3rd Quarter 2004		

Task	% of Total	% of Task this quarter	% of Task to date	% of Total Complete
1. Technology Review	10		100	10
2. Specifications				
2.01 Business Requirements	10		100	10
2.02 Functional Requirements	5		100	5
2.03 Design Specifications	5		100	5
3. Coding and Development	30	40	90	27
4. Debugging	10	80	90	9
5. On-Field Testing	10	90	90	9
6. Training	10	50	50	5
7. Deployment	10			
TOTAL	100%			80%

Project Objectives: To research and develop a paperless data collection system for New Jersey Traffic Operations South's Emergency Service Program and provide application software to transfer field collected incident data to the central database of New Jersey DOT Operations.

Project Abstract: The New Jersey Department of Transportation (NJDOT) Operations has an immediate need for efficient paperless case data entry solutions for their Emergency Service Providers (ESP's) personnel. The ESP personnel patrol designated areas throughout the State for the purpose of performing emergency services for motorists encountering minor and major accidents or incidents. At each accident scene or incident, a case description form is filled out by the ESP team, which includes data on motorist vital information, road conditions, etc. Currently, the form that is used by the ESP team is paper-based and is submitted at the end of the work shift. The data entry operator then enters this information into the central database, where the information is collected for further analysis. The use of paper forms creates an unnecessary workload for database operators. Also, this substantial number of forms (about 400/day) exceeds the data entry capabilities of the departmental database operators, thus creating significant backlogs and delays.

This project will be divided into three main stages:

- I. **Environment and Technology Research.** At this stage, NJDOT Operations ESP structures (organizational, geographical, information, etc.) will be studied along with the survey of current state-of-the art in PDA technology. The PDA-based system will be developed from the results of investigations, surveys, field reviews, and departmental recommendations regarding the improvement of existing operational and information exchange procedures. Additionally, the findings will be further adapted to the detailed specifications of hardware and software for PDA system.



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- II. **Development.** At this stage, custom PDA and server software will be developed, based on requirements produced in Stage I. A Pilot program, involving 1-3 PDA's will be executed with select ESP team members to test the efficiency of the developed system and improve it, if necessary.
- III. **Deployment and Training.** Upon completion of Stage II. ESP incident reporting will be migrated to the new PDA-based paperless system. Training will be provided to ESPs in order to demonstrate the use the PDA-based system. Optionally, training will be provided to designated personnel who are responsible for the maintenance and troubleshooting of the PDA-based system, as it interfaces with the central server.

Development of this hardware/software solution will utilize Windows-based PDAs to enter and store ESP incident forms in an electronic format. This will dramatically reduce the workload for database operators and provide a paperless operation for ESP personnel. This system would include the capability of easy submission of forms directly or indirectly into the central database, thus increasing the efficiency of the Division and eliminating the manual entry of information into the central database.

1. Progress this quarter by task:

- 3.0 Coding & Development completed for alpha version. Working product was presented to NJDOT for review. Requested changes to the screen selections were made.
- 4.0 Debugging completed for alpha version as well as for requested changes.
- 5.0 Field Testing - Equipment ordered for Aug – Sept testing; PDAs configured and software installed.
- 6.0 Training - Conducted initial training of Crew Supervisors and crew involved in field testing. Training of entire crew scheduled to begin in September.

2. Proposed activities for next quarter by task:

- 3.0 Complete Coding and Development for any requested changes and/or problems discovered in Field Testing.
- 4.0 Complete Debugging for any requested changes and/or problems discovered in Field Testing.
- 5.0 Complete Field Testing/Prepare report on Field Testing
- 6.0 Complete Training
- 7.0 Purchase balance of equipment and peripherals; install software; finalize migration of ESP incident data collected to electronic format.

3. List of deliverables provided in this quarter by task (product date):

- 3.0 Demonstration of completed product (alpha version) to NJDOT (August 6, 2004); Power Point slides of PDA Incident Recording screen prints delivered to NJDOT (August 9, 2004).

4. Progress on Implementation and Training Activities:

Training has begun. Not at implementation

5. Problems/Proposed Solutions:

None at this time



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Total Project Budget	\$98,395.00
Modified Contract Amount:	\$98,395.00
Total Project Expenditure to date	\$50,790.00
% of Total Project Budget Expended	51.62%

* These are approximate expended amounts for the project; these estimates are for reference only and should not be used for official accounting purposes. For a more accurate project accounting please review the quarterly invoice for this project.